

AFTER FINAL

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: :
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Brophy et al. :
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Application No. 10/642,439 : Art Unit: 1755
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Filed: Aug 14, 2003 : Examiner: James E. McDonough
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For: TETHERED CATALYST PROCESSES : Conf. No. 2458
IN MICROCHANNEL REACTORS AND :
SYSTEMS CONTAINING A TETHERED : Atty Docket: 02-024
CATALYST OR TETHERED CATALYST :
AUXILIARY :
:

REPLY BRIEF

Board of Patent Appeals and Interferences
Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

This Reply Brief is submitted in accordance with the terms of 37 C.F.R. § 41.41 in response to the Examiner's Answer mailed July 23, 2009. Any fees required for consideration of this paper, which are not provided for in the accompanying documents, can be charged to deposit account 50-1749.

VII. Argument

I. Claims 1, 3, 5, 7-9, 11, 24, 28, 32, 34-39, 41-42, 47 and 49-53 are not obvious in view of over Haswell et al., Lab on a Chip (2001), pp. 164-166 in view of Tonkovich et al. (U.S. Patent No. 6,488,838)

B. The claimed invention is nonobvious in view of Applicants' showing of unexpected results.

On pages 10-13 of the Examiner’s Answer, the Examiner has raised numerous new issues.

The Examiner has asked appellants to point out where the data from Haswell can be found. The data in Haswell that is referred to in paragraph 5 of Dr. Brophy’s Declaration can be found on page 8423 of the Haswell reference.

The Examiner points out that the tethers are different; however, as pointed out in paragraph 6 of Dr. Brophy’s Declaration, the difference is slight and the Haswell reference shows that the results are not significantly affected by differences in the tether (see Table 3 of Haswell).

In points (3) and (6) the Examiner argues that appellants have not offered persuasive reasoning why the invention is broadly advantageous and that appellant’s beliefs and opinions are given little weight. In this case, as explained in paragraph 1 of the Declaration, the inventor is both highly educated and highly experienced, and is an expert in the field. Thus, his opinion should be accorded significant weight. Furthermore, the authors of the cited reference, Haswell et al., used the same reaction (the Knoevenagel condensation) to demonstrate the general case of improved results with solid-supported reagents in a microreactor (see the Introduction). Moreover, the Examiner has not offered any evidence, other than his unsupported opinion, that the invention is not broadly advantageous. Thus, while the Examiner has provided neither evidence nor expert opinion, appellants have provided both evidence and expert opinion to show that the invention is broadly advantageous.

In point (4) on page 10, the Examiner argues that “Appellants have not shown why this known method would not have been obvious at least to try.” First, Appellants do not carry the burden to show that an invention is not obvious to try. Second, the question of a modification being “obvious to try” is not relevant to the issue of unexpected results.

In point (5) the Examiner argues that the Haswell teaching that “the reactive solution is driven through the pores under pressure and the number of catalytic sites available for reaction is increased” would lead a skilled worker to recognize that a method that had all of the catalyst on the surface would lead to a higher turnover number. This reasoning does not counter appellants’ showing of unexpected results because (a) it is improper hindsight reasoning that has no support in the prior art; (b) the statement is not scientifically supported since it does not account for flow dynamics – for example, the skilled worker could think that flow through catalyst beads was necessary in order to obtain sufficient contact of the reagent with the catalyst; and (c) the statement may be untrue since the skilled worker could think that driving the reactant stream through the catalyst at high pressure would be sufficient to make all the catalytic sites available. There is no basis in the prior art to support the Examiner’s reasoning.

On the bottom of page 11, item (1) the Examiner argues that the unexpected results are directed to a method of use. This point is not well-understood by appellants; however, it can be pointed out that the unexpected results are directly related to the claimed structure.

On page 12, item (2) the Examiner argues that “Appellants have not shown unexpected results over the reference of Tonkovich.” As pointed out previously, MPEP §716.02(e).III clearly states that a showing of unexpected results should be compared against a single reference that represents the closest prior art. In this case, Haswell et al. is the closest prior art. Therefore, appellants comparison with Haswell et al. is proper, and appellants cannot be required to compare their invention with that of Tonkovich.

On page 12 items (3) and (4), the Examiner argues that Tonkovich et al. teach a porous catalyst that defines one wall of a bulk flow path and that, based on this teaching, a packed reactor is considered to be a bulk flow path. The Examiner has misunderstood Tonkovich et al. Tonkovich et al. describe a bulk flow path and a porous catalyst on at least one side of the bulk

flow path. In Tonkovich et al., bulk flow does not occur through the porous catalyst; rather, bulk flow occurs in an open flow path that is adjacent to the porous catalyst.

On page 12, item (5), the Examiner argues that “a catalyst tethered to the walls of a reactor would contain more catalyst surface area than that of a packed bed.” This is untrue, a packed bed comprising porous beads would have much more surface area than the walls of a reactor.

II. Claim 28 is not obvious in view of over Haswell et al., Lab on a Chip (2001, pp. 164-166 in view of Tonkovich et al. (U.S. Patent No. 6,488,838) and further in view of Hoveyda et al. (U.S. Published Patent Application No. 2004/0019212)

B. Claim 28 is Separately Patentable

Claim 28 is an independent claim that requires a “chiral auxiliary.”

In the Examiner’s Answer, the Examiner raises new issues.

First, the Examiner points out that Hoveyda qualifies prior art on the basis of a priority claim to a provisional application. In view of this priority claim, Appellants withdraw their argument that Hoveyda does not qualify as prior art.

Second, the Examiner appears to acknowledge that a “chiral catalyst” is not a “chiral auxiliary.” Throughout the prosecution, the rejection of claim 28 has been based on the allegation that “chiral catalyst” is a “chiral auxiliary;” however, this no longer appears to be the basis of the rejection of claim 28. Hoveyda does not describe a “chiral auxiliary.” Thus, there is not a proper basis for the 103 rejection.

Conclusion

For the foregoing reasons, appellants respectfully submit that the Examiner has erred in rejecting this application. Please reverse the rejections discussed above.

Dated this 23rd day of September 2009.

Respectfully submitted,

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